

# **Interstate Water Management in the Potomac River Basin**





# 1960-70's Water Supply Studies

- 1960s Drought
- Forecasts of shortage given increasing demands
- Proposed structural solutions
  - Series of 16 reservoirs
  - Interbasin transfers
  - Pilot estuarine treatment plant

# Low Flow Allocation Agreement

- January 1978
- Agreement Among USCOE, Maryland, Virginia, the District, WSSC, and Fairfax Water Authority
- Authorized by WRDA 1976
- Ratified by the State Legislatures

# LFAA (cont.)

- Parties consent to having a moderator to enforce the Agreement
- All signatories are entitled to their winter water use in a declared restriction or emergency stage as long as 100 mgd flow-by maintained
- USCOE is the “accountant”
- State water withdrawal permits shall subject all future users to the Agreement.

# LFAA (cont.)

- Signatories meet every April to reaffirm allocations, designated moderator, and flow-by
- Meeting responsibility and designation of a back-up moderator rotates each year

# Water Supply Coordination Agreement (1982)

- Mandates coordinated operation of all local and federal facilities
- Optimizes collective resources to minimize chances of a shortfall
- Releases made in 1999 and in 2002 from Jennings Randolph and Little Seneca Reservoirs.
- Regular meetings of the Operations Committee have occurred since 1981.
- ICPRB Role established

# **CO-OP SECTION**

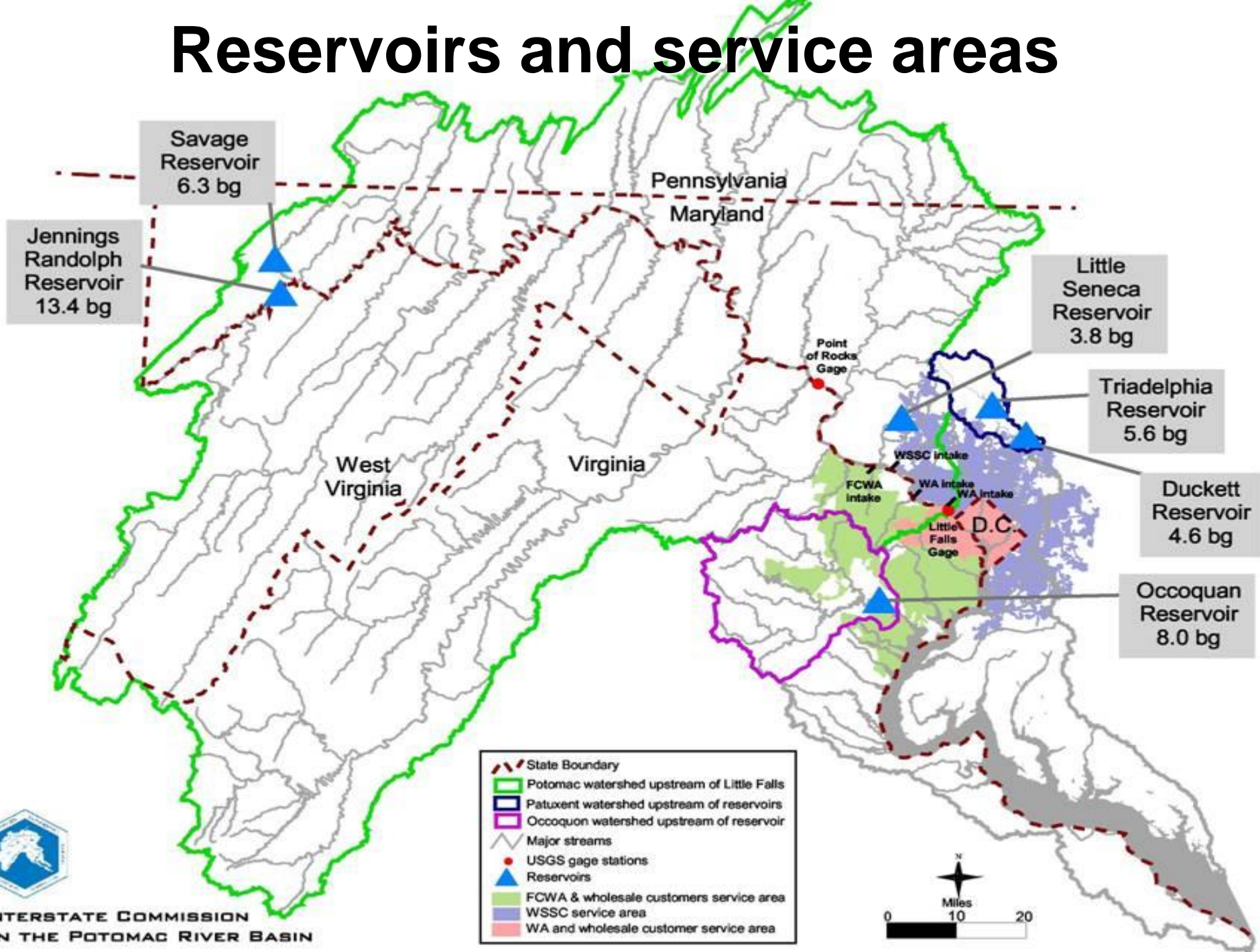
## ***Section for Cooperative Operations on the Potomac River***

- Special Sections Authorized in Compact
- Created 1979
- Governed by LFAA & WSCA
- Three Utilities – “Operations Committee”
- Manage Metro Supply During Drought
  - Five Year Demand Studies
  - Annual Drought Exercise
  - Technical Support/Advise/Assistance

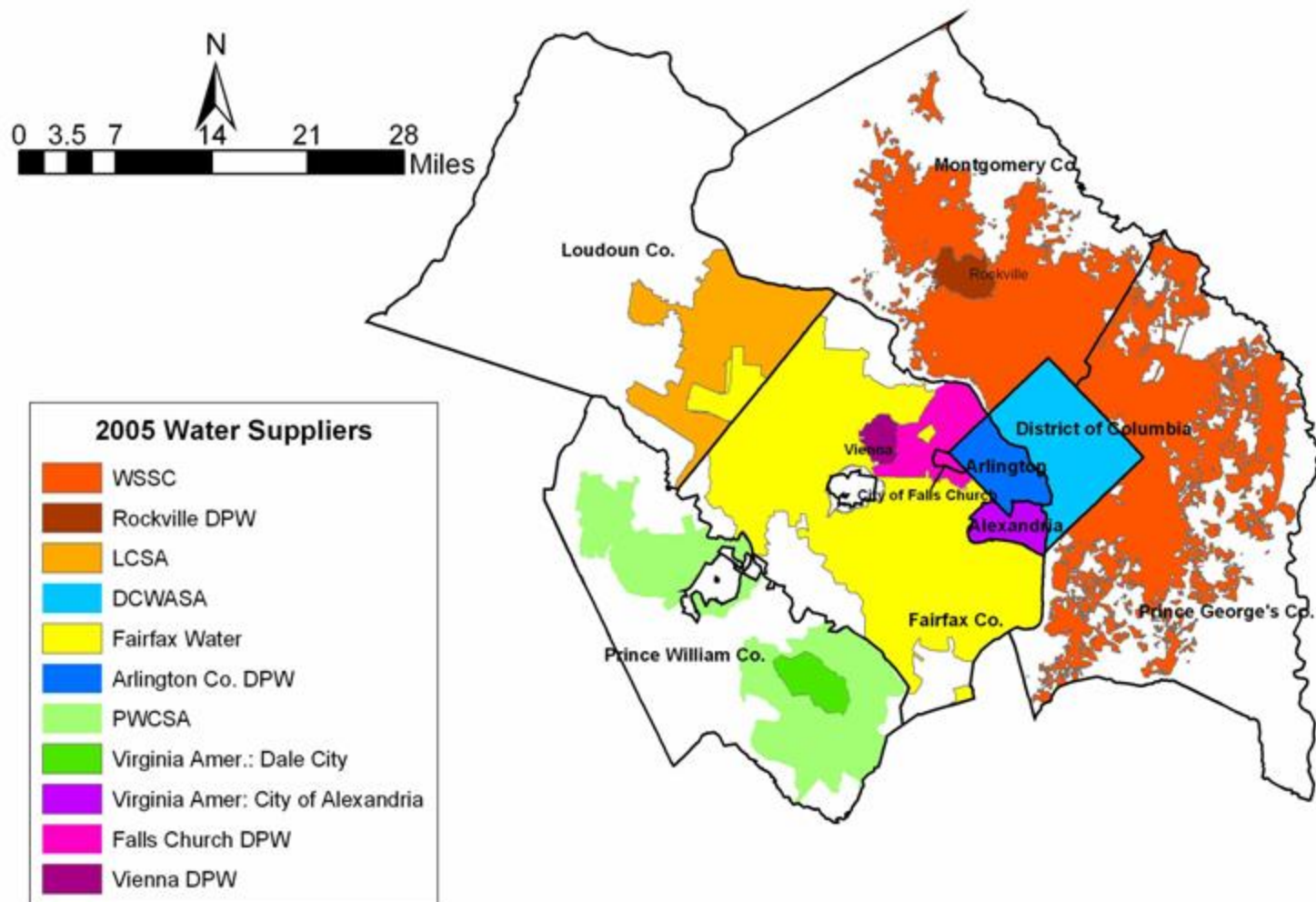
# CO-OP Section Functions

- Water Supply Outlooks.
- Annual Drought Exercises.
- Operations in drought years.
- Spill model and emergency support.
- Research
  - Development of watershed runoff model to assess effects of changing land use on drought of record.
  - Investigation of paleoclimatological records to explore vulnerability of system to changes in climate.
  - Development of new tools to assess reservoir refill reliability during droughts, using statistical tools that account for flow persistence (i.e., flow conditioning).

# Reservoirs and service areas



## 2005 Washington Metropolitan Area Water Supplier Service Areas



Interstate Commission on the Potomac River Commission: CO-OP  
 January 2005  
 Sources: All utilities noted in the map legend as well as  
 Montgomery and Prince George's Co. Planning Departments.

# Washington Area's Demand Forecast and Resource Assessments

## ➤ Every 5 years:

- Conduct demand forecast
- Assess system reliability for current and future demand levels

## ➤ Through 2000:

- Historical streamflow

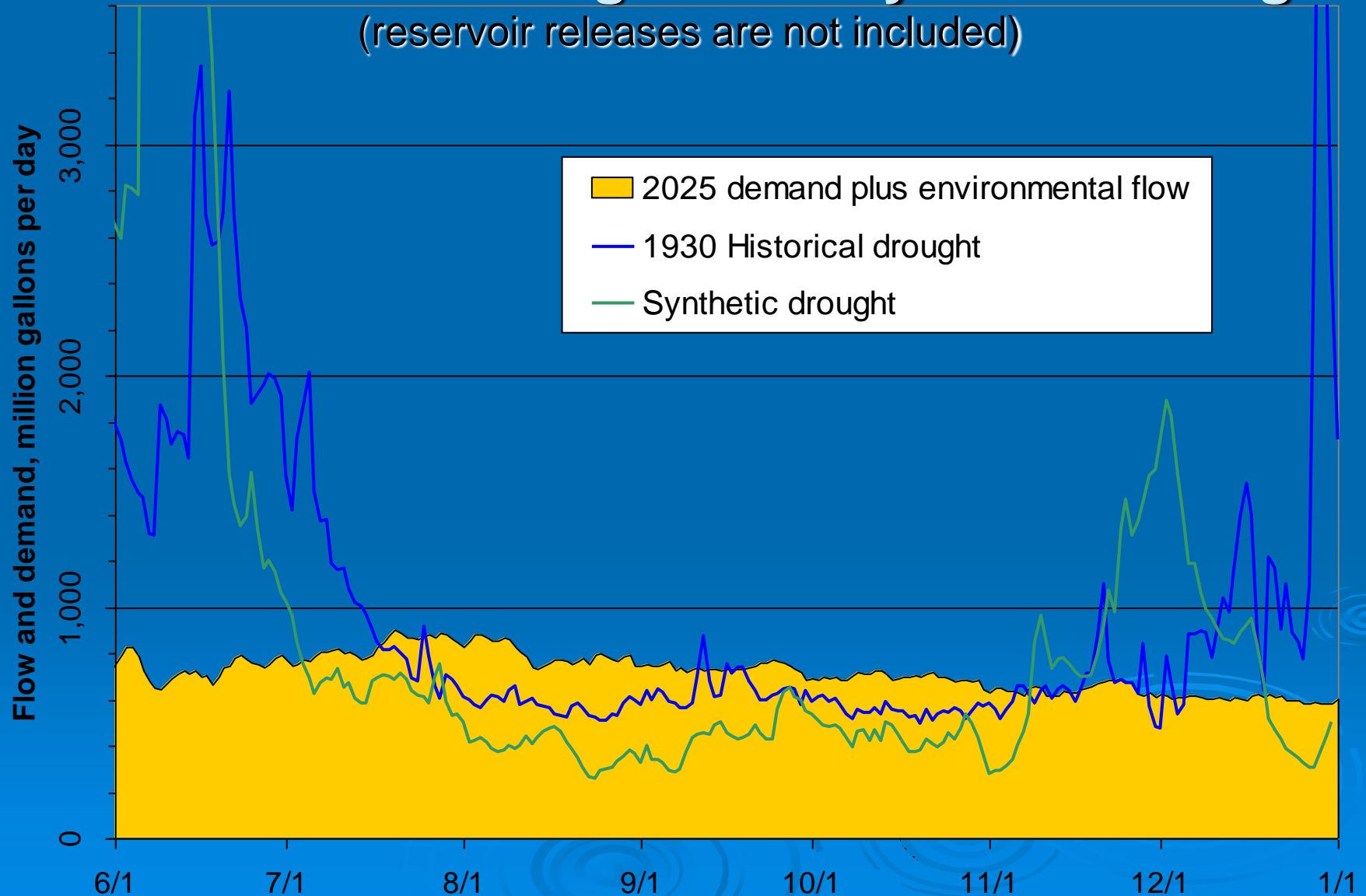
## ➤ In 2005:

- Historical streamflow
- Synthetic streamflow



# Potomac River Flow upstream of water supply intakes, 1930 Historical Drought vs. a Synthetic Drought

(reservoir releases are not included)




# Metropolitan Washington Water Supply and Drought Awareness Response Plan: Potomac River System

*Adopted June 7, 2000*

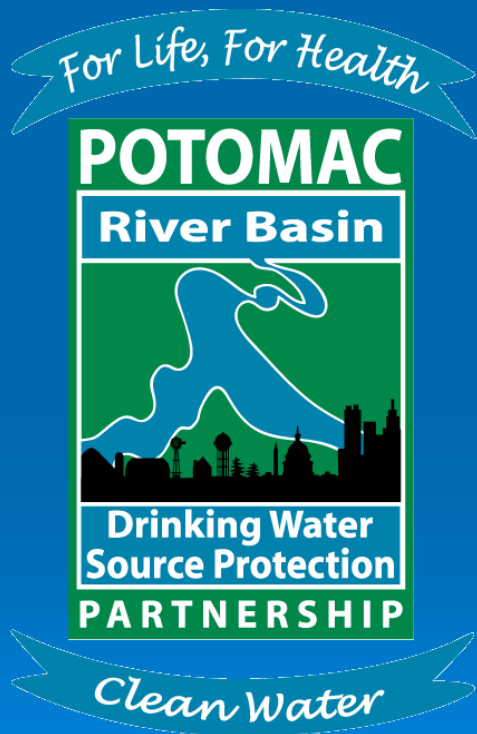
	Normal	Watch	Warning	Emergency
	Wise Water Use	Voluntary Water Conservation	Voluntary Water Restrictions	Mandatory Water Restrictions
<b>Audience</b>	Entire Metropolitan Washington Region	Entire Metropolitan Washington Region	Customers of Co-op System, associated local governments, media	Customers of Co-op System, associated local governments, media
<b>Trigger</b>	<ul style="list-style-type: none"> <li>None – water supply adequate to meet all demands</li> </ul>	<ul style="list-style-type: none"> <li>NOAA “D1” drought level in Potomac River Basin (adopted on a <i>provisional 2-year basis and will be re-assessed during this time period</i>)</li> </ul>	<ul style="list-style-type: none"> <li>Combined water supply storage at Jennings Randolph and Little Seneca reservoirs drops to 60% of capacity for 5 consecutive days; lifted when combined water storage at reservoirs increases and remains above 60% for a period of 15 days; OR</li> <li>5% Probability of not meeting unrestricted water supply demands over next 1 – 2 months</li> </ul>	<ul style="list-style-type: none"> <li>50% probability of not being able to meet water supply demands over next month</li> </ul>
<b>Actions</b>	<ul style="list-style-type: none"> <li>Year round Water Conservation Program emphasizing “Wise Water Use” (Attachment B)</li> <li>Routine reporting                             <ul style="list-style-type: none"> <li>Annual briefing in May</li> <li>Monthly Water and Drought Outlooks (June-Oct.)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Meeting of the Drought Coordination Committee</li> <li>Regional media briefing/media communications;</li> <li><u>Announce voluntary water conservation recommendations</u></li> <li>Detailed water supply and drought status reporting; outline of next steps in plan;</li> <li>Inform public that Potomac River Co-op Water Supply is adequate to meet unrestricted demands</li> </ul>	<ul style="list-style-type: none"> <li>Meeting of the Drought Coordination Committee</li> <li><u>Announcement of voluntary water restrictions</u> (see attachment C-illustrative list)</li> <li>Regional media briefing on a weekly basis/ongoing media communications</li> </ul>	<ul style="list-style-type: none"> <li>Meeting of the Drought Coordination Committee</li> <li><u>Announcement of mandatory water restrictions</u> (see attachment C-illustrative list)</li> <li>WAD assigns allocations to Potomac River utilities (per Low Flow Allocation Agreement)</li> <li>Regional press conference on daily basis; ongoing media communications</li> <li>Water supply reporting on a daily basis</li> </ul>

	Normal	Watch	Warning	Emergency
<b>Actions Cont.</b>		<ul style="list-style-type: none"> <li>Press release upon first water supply release; reporting on a weekly basis thereafter</li> <li>Press release when water supply storage at Jennings Randolph and Little Seneca reservoirs drops to 75% of capacity.</li> <li>Press releases/briefings to include voluntary water conservation recommendations</li> </ul>		
<b>Messages</b>	<p><u>Wise Water Use Messages:</u></p> <ul style="list-style-type: none"> <li>Wise water use—focus on inside uses: repairing plumbing problems/leaks</li> </ul> <p><u>General Information Messages:</u></p> <ul style="list-style-type: none"> <li>Know your water sources and suppliers</li> <li>Water supply outlook</li> <li>Regional response to drought (here is how the region is prepared to respond)</li> <li>Promotion of web site(s)</li> </ul>	<p><u>Voluntary Water CONSERVATION Messages:</u></p> <ul style="list-style-type: none"> <li>Emphasis on water conservation outside the home or office—</li> <li>Reminders about year round wise water uses</li> </ul> <p><u>General Information Messages:</u></p> <ul style="list-style-type: none"> <li>Know your water sources and suppliers</li> <li>Co-op water supply system outlook</li> <li>Impact on groundwater users, environment, non-co-op water systems, and agriculture</li> <li>Water supply conditions have deteriorated, but Co-op water supply system still adequate</li> <li>Reminder that reservoir releases are planned events</li> <li>Understanding of current water supply and hydrologic and soil moisture conditions</li> <li>Reminders of the next steps if conditions worsen</li> </ul>	<p><u>Voluntary Water RESTRICTIONS Messages:</u></p> <ul style="list-style-type: none"> <li>Public and businesses asked to voluntarily implement water restrictions to help ensure adequate water supply and maintain reservoir levels</li> <li>Detailed list of voluntary water restrictions issued</li> </ul> <p><u>General Information Messages:</u></p> <ul style="list-style-type: none"> <li>Know your water source</li> <li>Water supply conditions have deteriorated, but Co-op system water supply still adequate</li> <li>Co-op water supply system outlook</li> <li>Reminders of the next steps if conditions worsen</li> </ul>	<p><u>Mandatory Water RESTRICTIONS Messages:</u></p> <ul style="list-style-type: none"> <li>Public and businesses required to implement water restrictions to maintain water supplies</li> <li>Detailed list of mandatory reductions issued</li> </ul> <p><u>General Information Messages:</u></p> <ul style="list-style-type: none"> <li>Water supply very limited; water use reductions essential</li> <li>Know your water source</li> <li>Co-op water supply outlook</li> </ul>

# Annual Drought Exercise

- Week-long simulation of water management and decision-making
  - Operational procedures
  - Improvement of tools and procedures
  - Train new personnel and refresh staff knowledge
  - Prepare for drought operations
  - Practice Communication
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# Potomac Drinking Water Source Protection Partnership



- Voluntary alliance
- Goal is protection of source water
- Works cooperatively on studies and projects
- Initiated in September, 2004

# Current Membership

- 7 state agencies
- **EPA**
- U.S. Geological Survey
- ICPRB
- 10 public water supply systems



# Anything Else?

- Joint consumptive use legislation 2007
- Interstate TMDLs

# Take Home

- Cooperation between states needs:
  - A crisis
  - An unbiased institution to provide a forum for communication and building trust
  - Other important parties whose interests are advanced by State cooperation
  - A transparent technical foundation
  - A success or two to build confidence
  - Flexibility to needs/O.P.T.I.O.N.S.
  - A pinch of luck
- Cooperation between States cannot:
  - Eliminate the impact of politics, rivalry or fear
  - Ensure you will reach consensus on all issues
  - Serve as a substitute for state regulations